HU Shar, A   D

Planirovaniye narodnogo khozyaystva SSSR (The planning of Russia's national economy) Moskva, Gosrolitizdat, 1956.
131 p. tables.
Bibliographical footnotes.

Kurskiy, A.D.

PHASE I BOOK EXPLOITATION   1182

Akademiya nauk SSSR.   Institut ekonomiki

Voprosy sotsialisticheskogo vosproizvodstva   (Problems of Socialist
    Capital Formation) Moscow, Izd-vo AN SSSR, 1958.   414 p.   7,000
    copies printed.

Resp. Ed.: Kronrod, Ya. A., Doctor of Economic Sciences; Ed. of
    Publishing House: Shenkman, B.I.; Tech. Ed.: Guseva, I.N.

PURPOSE: This collection of articles dealing with various aspects
    of capital formation is intended for Soviet economists.

COVERAGE: The book contains articles dealing with capital forma-
    tion, relatively little publicized in Soviet economic litera-
    ture. This subject is of interest because of the methodology
    discussed and the articles are considered by the authors as
    being of value to studies on national economic planning. There
    are no references.

TABLE OF CONTENTS:

Card 1/4

Card 2/4

Problems of Socialist (Cont.)   1182

Khavina, S.A. Capital Formation in Modern Bourgeois Litera-
    ture of the US
                                                        386

AVAILABLE: Library of Congress (HC335.A629)

Card 4/4

                                        JG/ar
                                        2-24-59

KURSKIY, Aleksandr Dmitriyevich; KARPUKHIN, D., red.; MUKHIN, Yu.,
tekhn.red.

[Economic basis of national economic planning in the U.S.S.R.]
Ekonomicheskie osnovy narodnokhoziaistvennogo planirovaniia v
SSSR. Moskva, Gos.izd-vo polit.lit-ry, 1959. 367 p.
                                                (MIRA 13:1)
          (Russia--Economic policy)

30(5)

.AUTHOR: Kurskiy, A. D.   SOV/30-59-2-1/60

TITLE: Planning of the Soviet Economics (Perspektivnoye planirovaniye
             i problemy sovetskoy ekonomicheskoy nauki)

PERIODICAL: Vestnik Akademii nauk SSSR, 1959, Nr 2, pp 3-10 (USSR)

ABSTRACT: The most topical problems of the Soviet economics are: the
             Socialist reproduction and balance of economy; the methods of
             increasing the productivity of work, of making capital invest-
             ments economically productive as well as introducing a new
             technique; the law of value, economical balancing and problems
             of price formation; the law dealing with the distribution of
             work, nature and importance of wages and the material stimulus
             of Socialist production; the distribution, specialization and
             the tendency towards incorporation of production in the USSR;
             international division of work in the Socialist countries;
             economic competition between Socialism and Capitalism. The
             author deals with the individual problems in detail. The
             problems mentioned are investigated by the Institut ekonomiki
Card 1/2   Akademii nauk SSSR (Institute of Economics of the Academy of
             Sciences, USSR), the Nauchno-issledovatel'skiy ekonomicheskiy '

SOV/30-59-2-1/60

Planning of the Soviet Economics

institut Gosplana SSSR (Scientific Research Institute of Economics of the State Planning Committee of the USSR) and a number of other scientific research institutions and universities. The author regards the theoretical and practical importance of these investigations to be not sufficient and lacking in coordination. At the All-Union Scientific-Technical Conference in Moscow, which took place in June 1958 it was decided upon recommendations for the problems of finding the most economical way of capital investment as well as upon a new technique. These problems have, however, hitherto remained unsolved. In June 1958 the Plenary Meeting of the TsK KPSS decided to change from the variety of prices in agriculture to uniform prices which are to be differentiated with respect to districts. On November 14, 1958 the Presidium Akademii nauk SSSR (Presidium of the Academy of Sciences, USSR) took the resolution on measures for the creation of close relations between the Institute of Economics of the AS USSR and the State Planning Committee of the USSR. There is 1 Soviet reference.

Card 2/2

KURSKIY, Aleksandr Dmitriyevich; TYAGAY, Ye., red.; KLIMOVA, T., tekhn. red.

[Main economic objective] Glavnaia ekonomicheskaia zadacha. Mo-
skva, Gospolitizdat, 1962.   (MIRA 15:6)
                    (Russia—Economic policy)

AKOPOV, R.Ya., kand. ekon. nauk, dots.; BASYUK, T.L., doktor
ekon. nauk, prof.; BIRMAN, A.M., doktor ekon. nauk, prof.;
GRIGOR'YEV, A.Ye., doktor ekon. nauk, prof.; DOKUKIN, V.I.,
prof.; IKONNIKOV, V.V., prof.; KONDRASHEV, D.D., doktor
ekon. nauk; KURSKIY, A.D., doktor ekon. nauk; LOKSHIN, E.Yu.,
doktor ekon. nauk, prof.; MALYY, I.G., kand. ekon. nauk,
dots.; PERVUSHIN, S.P., kand. ekon. nauk; PLOTNIKOV, K.N.,
TYAPKIN, N.K., kand. ekon. nauk; FILIMONOV, N.P., kand. ekon.
nauk; SHAFIYEV, K.N., doktor ekon. nauk; prof.; BAKOVETSKIY,O.,
red.; KOKOSHKINA, I., mladshiy red.; MOSKVINA, R., tekhn. red.

[Economics; communist means of production]Politicheskaia ekono-
miia; kommunisticheskii sposob proizvodstva. Uchebnik 2., pe-
rer. i dop. izd. Moskva, Sotsekgiz, 1963. 599 p.
(MIRA 16:5)
1. Chlen-korrespondent Akademii nauk SSSR (for Plotnikov).
(Economics) (Communism)

KURSKIY, M.D. [Kurs'kyi, M.D.]

Effect of glycerol and α-glycerophosphate on ketogenesis and oxygen consumption in the rabbit liver. Ukr.biokhim.zhur. 31 no.5:725-734 '59.

(MIRA 13:4)

1. Ukrainian Academy of Agricultural Sciences, Department of Biochemistry.

(GLYCEROL) (GLYCEROPHOSPHATE) (OXIDATION, PHYSIOLOGICAL)

PERSKIY, M. L., Cand Bio Sci -- (diss) "Study of the role of certain factors in the process of lipogenesis in animals," Kiev, 1960, 19 pp (Ukrainian Academy of Agricultural Sciences) (KL, 37-60, 121)

KURSKIY, M.D. [Kurs'kyi, M.D.]

Effect of alpha-glycerophosphate on the synthesis of lipids from
acetate and ethyl alcohol by liver tissue. Ukr.biokhim.zhur. 32 no.2:
247-254 '60.   (MIRA 13:11)

1. Institute of Biochemistry of the Academy of Sciences of the
Ukrainian S.S.R., Department of Biochemistry of the Ukrainian
Academy of Agricultural Sciences.
        (LIVER)
        (LIPIDS)
        (GLYCEROPHOSPHATES)

KURSKIY, M.D. [Kurs'kyi, M.D.]

Effect of glycerol, α-glycerophosphate, acetate and brewer's yeast on the butterfat percentage of milk and ketogenesis in goats and cows. Ukr. biokhim. zhur. 32 no.5:700-709 '60.
(MIRA 14:1)

1. Kafedra biokhimii Ukrainskoy akademii sol'skokhozyaystvennykh nauk, Kiyev.
(KETOSIS)   (BUTTERFAT)

KURSKIY, M.D. [Kurs'kyi, M.D.]

Method of paper chromatography in the study of the content of
ATP and its products in the brain. Ukr. biokhim. zhur. 35 no.4:
535-541 '63.   (MIRA 17:11)

1. Institute of Biochemistry of the Academy of Sciences of the
Ukrainian S.S.R., Kiyev.

KURSKIY, M.D. [Kurs'kyi, M.D.]; ZRYAKOV, O.N. [Zriakov, O.M.]

Effect of serotonin on the free nucleotide content in the brain
tissue of rabbits. Ukr. biokhim. zhur. 36 no.5:679-684 '64.
(MIRA 18:6)

1. Institut biokhimii AN UkrSSR, Kiyev.

Kurskiy, T. D.

KURSKIY, T.D.

Dry batteries for starting automobiles. Avt.i trakt.prom.
no.11:45 N '57.   (MIRA 10:12)
                   (Automobiles—Batteries)

KURSKIY, Vladimir Ivanovich.; KOZHIN, N.I., prof., red.; RYBAKOVA, N.T., red.;
NATANOV, M.I., tekhn. red.

[Fishes in their natural habitat and in human economy; handbook for
teachers] Ryby v prirode i khoziaistve cheloveka; posobie dlia
uchitelei. Pod. red. N.I.Kozhina. Moskva, Gos. uchebno-pedagog.
izd-vo M-va prosv. RSFSR, 1958. 180 p.   (MIRA 11:10)
                        (Fishes)
                    (Fisheries)

KURSKIY, Ye.F., dorozhnyy master 8 okolotka (Bryansk); KOSTIKOV, A.I., dorozhnyy master 7 okolotka (Bryansk); ZENIN, P.I.; NAZYMOK, N.P. (Kaluga)

Letters of the "Zheleznodorozhnyi transport" readers in response to the article "Improving the stability of tracks laid on sand foundation." Zhel.dor.transp. 42 no.10:44 O '60.   (MIRA 13:10)

1. Bryanskaya distantsiya puti Kalininskoy dorogi (for Kurskiy, Kostikov).
2. Brigadir 25 otdeleniya 9 distantsii puti Kalininskoy dorogi, Bryansk (for Zenin). 3. Zamestitel' nachal'nika Kaluzhskoy distantsii puti. (for Nazymok).
                    (Railroads--Track)

KURSKIY, Yu.A.; SELIVANENKO, A.S.

Theory of luminescence quenching in liquid solutions. Opt. i spektr.
8 no.5:643-650 My '60. (MIRA 13:9)
                    (Luminescence)

89290

S/181/61/003/001/029/042
B102/B204

24.7600 (1043,1158,1469)

AUTHOR: Kurskiy, Yu. A.

TITLE: Distribution of non-equilibrium carriers in the surface layer
            of the volume charge of a semiconductor at high surface
            potentials

PERIODICAL: Fizika tverdogo tela, v. 3, no. 1, 1961, 212-213

TEXT: The author deals with a critical discussion of a paper by P. Berz
(Proc.Phys.Soc., v. 71, p.275), in which the change in the carrier
distribution function within the range of the volume charge on the semi-
conductor surface has been studied in the case of a disturbance of thermo-
dynamic equilibrium. The possible causes of deviation from the Maxwell-
Boltzmann distribution f_{MB} in thermodynamic equilibrium were analyzed, in
which connection Berz pointed out two mechanisms: the existence of a
strong electric field on the surface, and the production and recombination
of excess carriers. The effect of the former mechanism on the change in
the dependence of the surface recombination rate s upon the surface

Card 1/3

89290

S/181/61/003/001/0 29/04 2
B102/B204

Distribution of non-equilibrium...

potential is considered on the basis of a model, in which the volume charge layer on the surface is divided into two regions (strong and a weak field). In this direction it was found that the manner of dependence of s on the surface potential changes considerably, and this change has a marked effect (exponentially) upon the choice of the parameters of the model (strong field dimensions). Whereas a strictly quantitative calculation of the correction to f_{MB} for field effects is mathematically difficult, the deviation from the equilibrium distribution function may nevertheless be estimated. Deviation from f_{MB} is considerable ("heating" of the carriers) only if a current exists that is related to the external field which imparts kinetic energy to the carriers. Such a current could not be detected experimentally. Though the carriers may have a potential energy exceeding the thermal one (kT), the kinetic energy nevertheless remains smaller than kT. As regards the deviation from f_{MB} due to generation and recombination of excess carriers, this effect produces volume and surface currents of electron and hole recombination. Semicon- ductors like Ge and Si have a recombination rate of the order of 10^3 cm/sec.

Card 2/3

89290
S/181/61/003/001/029/042
B102/B204

Distribution of non-equilibrium...

Thus, it is smaller by several orders of magnitude than the thermal velocity. An estimation of the correction for generation and recombination effects to f_{MB} gives 10^{-4}. Also consideration of the concentration ratio between excess carriers and equilibrium carriers produces no effect on this result. An estimation of the deviation of f_{MB} due to generation and recombination effects, carried out according to B. N. Davydov's equation of motion, gives 10^{-3} as the upper limit. Thus, the results obtained by Berz, who predicted a considerable change in the dependence of s on the surface potential, are found to be wrong. The deviation in any case remains so low that it cannot be detected experimentally. The author thanks A. V. Rzhanov and V. A. Chuyenkov for discussions. There are 8 references: 3 Soviet-bloc and 6 non-Soviet-bloc.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva AN SSSR Moskva
              (Institute of Physics imeni P. N. Lebedev, AS USSR, Moscow)

SUBMITTED: July 11, 1960

Card 3/3

24750°

40901
S/181/62/004/009/041/045
B104/B186

AUTHOR: Kurskiy, Yu. A.

TITLE: Neutralization of surface recombination centers in Ge

PERIODICAL: Fizika tverdogo tela, v. 4, no. 9, 1962, 2620-2622

TEXT: The problem of the motion of an electron in the field of a dipole
$\vec{d}$, $\vec{d}\vec{r}/\varepsilon r^3$ is studied by the classical and the quantum mechanical theories.
The Hamilton-Jacobi equation is solved in spherical coordinates giving

$$\frac{1}{r} = \sqrt{\frac{2m|E|}{|\beta|}} \, \text{ch} \left[\sqrt{\frac{\varepsilon|\beta|}{med}} \, F(\varphi, \, k) \right],$$

for the finite trajectory $(E < 0)$. Here, β and E are the integrals of the
motion, and $F(\varphi,k)$ is a first-order elliptic integral. In the quantum
mechanical case the equation for the radial part of the ψ-function is

$$R'' + \frac{2}{r} R' + \frac{|\lambda_0|}{r^2} R = \frac{2m|E|}{\hbar^2} R.$$

Card 1/2

Neutralization of surface...

From this equation

$$|\lambda_0| = \sqrt{1 + \frac{1}{3}a_1^2} - 1, \quad a_1 = \frac{2med}{\varepsilon \hbar^2}.$$

follows as an approximation, describing the incidence on a center whose dipole potential disappears already at a small distance from it. Hence a neutral center with a dipole moment may perform a trapping from sufficiently large distances. With Ge a dipole moment of ~15 D is estimated to be necessary for the formation of coupled states. The neutralizing effect of polar liquids is explained as follows: If a surface is continuously covered with dipoles then this surface is a double layer with a zero field. The trapping probability is very low. With partial desorption of individual dipole groups localized states may occur, thus the center may perform a trapping. There is 1 figure.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva, Moskva (Physics
Institute imeni P. N. Lebedev, Moscow)

SUBMITTED: April 13, 1962 (initially)
May 25, 1962 (after revision)

Card 2/2

KURSKIY, Yu.A.

Thermal capture of electrons by a neutral center in a semiconductor.
Fiz. tver. tela 6 no.5:1485-1500 My '64.   (MIRA 17:9)

1. Fizicheskiy institut imeni Lebedeva AN SSSR, Moskva.

S/0181/64/006/005/1485/1500

ACCESSION NR: AP4034934

AUTHOR: Kurskiy, Yu. A.

TITLE: Thermal capture of electrons by neutral centers in semiconductors

SOURCE: Fizika tverdogo tela, v. 6, no. 5, 1964, 1485-1500

TOPIC TAGS: thermal capture, neutral center, semiconductor, dipole moment, A center, silicon, wave function, electron spin resonance, electron paramagnetic resonance, infrared absorption, conduction band

ABSTRACT: The author employs the method proposed by H. Gummel and M. Lax (Ann. Phys., 2, 28, 1957) to investigate the capture of neutral-center carriers having a constant dipole moment. Examination of the A center in Si shows that under certain conditions of dielectric constant, dimensions of the center, and structure of the conduction band, there exists practically but a single low excited level of the center. The dipole moment, inversely proportional to the square of the distance, has no low level (in opposition to the Coulomb potential), and the potential is essentially effective at small distances (cutoff). This is so fundamental that practically only a single level remains of the continuous spectrum of negative energies. The low level explains the large capture cross

Card 1/2

ACCESSION NR: AP4034934

section of the carriers (as observed). The author determines the intrinsic
dipole moment of the A center, the reciprocal effect on the lattice, and the
shielding of the dipole by the lattice. The wave function of the ground state,
the cutoff of the dipole potential, and the constant in the deformation potential
for an electron in the ground _tate are obtained from data on electron spin
resonance. The electron capture cross section at the excited level and the proba-
bility of transition from the excited to the ground state are computed. These
are related by corresponding recombination statistics to the electron capture
cross section from the conduction band to the ground state. The computed values
and temperature dependence of the capture cross sections for the A center are
in good agreement with experimental data. "The author expresses his sincere
thanks to G. A. Milekhin for valuable discussions on the early stages of the work,
to Professor V. S. Vavilov for his attention and interest in the work, and to
Professor V. L. Bonch-Bruyevich for a number of useful remarks." Orig. art. has:
4 figures and 43 formulas.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva AN SSSR, Moscow (Physical
Institute AN SSSR)

SUBMITTED: 27May63   DATE ACQ: 20May64   ENCL: 00
SUB CODE: SS   NO REF SOV: 005   OTHER: 017
Card 2/2

L 20372-65   EWT(1)/EWG(k)/EEC(t)/T/EWA(h)   Pc-6/Pab   IJP(c)/BSD/
SSD/ASD(a)-5/AFWL/AEDC(a)/SSD(c)/AS(mp)-2/RAEM(c)/RAEM(1)/ESD(gs)/
ESD(t)   AT
ACCESSION NR: AP4043339   S/0181/64/006/008/2263/2273

AUTHOR: Kurskiy, Yu. A.   /3

TITLE: Optical absorption and recombination radiation associated
with A-centers in silicon

SOURCE: Fizika tverdogo tela, v. 6, no. 8, 1964, 2263-2273

TOPIC TAGS: optical absorption, recombination luminescence, silicon,
electron paramagnetic resonance, electron transition, exciton

ABSTRACT: Using the effective mass theory and published experi-
mental EPR data, the spectrum of excited levels of a hole in an
electron-filled A-center in silicon is derived; an A-center is de-
fined as an atom of oxygen associated with a vacancy. The Franck--
Condon principle is used to calculate the absorption bands for
electron transitions from the ground level of the center at $E_c - 0.17$
ev to the conduction band and to an excited level of the center at

Card 1/3

L 20372-65
ACCESSION NR: AP4043339

E_c - 0.057 ev, and for electron transitions leading to the formation of an exciton at the ground level of the center with a hole at the first excited level at E_v + 0.13 ev. The latter two transitions are identified with   known bands at 5.5 and 1.8 μ in irradiated Si. A luminescence band, corresponding to the 1.8 μ absorption band, due to recombination of an electron and a hole of the localized exciton is found to have a maximum at about 2 μ. The calculated cross section for thermal transition of a hole from the valence band through the E_v + 0.13 ev level to the ground state is found to be 5 orders of magnitude smaller than the experimental value for radiative capture cross section, which is 10^{-13} cm^2 at 77°K. The available experimental data are considered to support the model of the center proposed by the present author in an earlier paper (FTT v. 6, 1485, 1964). "The author thanks V. S. Vavilov for interest in the work and V. N. Alyamovskiy for a useful discussion." Orig. art. has: 1 figure and 27 formulas.

Card 2/3

L 20372-65
ACCESSION NR: AP4043339

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva AN SSSR,
Moscow (Physics Institute, AN SSSR)

SUBMITTED: 06Jan64   ENCL: 00

SUB CODE: OP, SS   NO REF SOV: 005   OTHER: 009

Card   3/3

KURSKIY, Yu.A.

Optical absorption and recombination radiation related to
A-centers in silicon. Fiz. tver. tela 6 no.8:2263-2273
Ag '64.   (MIRA 17:11)

1. Fizicheskiy institut imeni Lebedeva AN SSSR, Moskva.

L 34089-65   EWT(m)/EWP(b)/EWP(t)   IJP(c)   JD

S/0181/65/007/003/0707/0709

21
20
B

ACCESSION NR: AP5006870

AUTHOR: Kurskiy, Yu. A.

TITLE: Possibility of coherent radiation on localized excitons in silicon by injection through the p-n junction

SOURCE: Fizika tverdogo tela, v. 7, no. 3. 1965, 707-709

TOPIC TAGS: radiation, stimulated radiation, exciton radiation, silicon radiation, coherent radiation, stimulated coherent radiation, stimulated exciton radiation, stimulated silicon radiation

ABSTRACT: This article is a continuation of an earlier work by the author (FTT, v. 6, 1964, 1485 and 2263) on the 1.8-μ absorption band in "oxygenized" silicon. This band was assumed to be related to the absorption by an exciton localized in an A-center. A corresponding radiation band of the exciton at 2.1 μ with a width of 0.1 ev at 77K was postulated but not experimentally confirmed (except for the experimental coincidence of the orientation of the center responsible for the 1.8 μ absorption band with its orientation derived analytically from electron spin resonance). In the present article estimates are made of the concentrations of the centers and the free carriers in order to obtain the coherent radiation in the radiation band of the localized exciton. The assumption was made that all recombination of free

Card 1/2

L 34089-65

ACCESSION NR: AP5006870

electrons and holes was by means of the excitons localized in the A-center. The energy levels and transition probabilities in the A-center are represented graphically, and on the basis of this the necessary condition for an inverse population with respect to ground state populations is postulated. An expression for the negative absorption coefficient is presented, and on the basis of this the necessary concentration of A-centers at 77K was found to be approximately 3×10^{18} per cm^3, with an equal concentration of free carriers. A p-n junction of certain characteristics is proposed which would display the necessary population difference with the injection of 3×10^{18} holes from the p-region into the n-region. The critical current density through the p-n junction was established as 1.3×10^3 amp/cm^2, which would correspond to an efficiency ceiling of 30% and an output power of 0.3 v. The possibility of the production of SiO_2 molecules as a result of the presence of oxygen (which might impede the attainment of the required concentration of A-centers) is said to be compensated by the increase of absorption intensity with increased injections. Orig. art. has: 1 figure, 1 table, and 3 formulas.   [FP]

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva AN SSSR,Moscow (Physics Institute,AN SSSR)

SUBMITTED: 27Jun64   ENCL: 00   SUB CODE: SS

NO REF SOV: 008   OTHER: 008   ATD PRESS:3210
Card 2/2

KURSKIYEV, P.V.

Pneumatic PI single-piston and PIT double-piston drive attachments.
Mash. i neft. obor. no.2:19-23 '65.   (MIRA 18:5)

1. Groznenskiy filial Vsesoyuznogo nauchno-issledovatel'skego i
proyektno-konstruktorskogo instituta kompleksnoy avtomatizatsii
neftyanoy i gazovoy promyshlennosti.

KURSKOV, A.

    Master of virgin forest. IUn. nat. no.12:7 D '62.   (MIRA 16:1)
        (Byalovezhska Pushcha—Bison, European)

KURSKOV, Aleksandr Nikitovich; ANDREYEVA, N.I., red.; ZHUK, V.N.,
tekhn. red.

[Visiting preserves; notes of a naturalist] Po zapovednym
mestam; zametki naturalista. Minsk, Gos. uchebno-pedagog.
izd-vo M-va prosv. BSSR, 1963. 87 p.   (MIRA 16:8)
(White Russia—Wildlife, Conservation of)

KURSKOV, A.M. [Kurskou, A.M.]

Distribution and ecology of chiropterans in the White Russian
S.S.R. Vestsi AN BSSR. Ser.biial.nav. no.2:80-87 '60.

(MIRA 13:7)

(WHITE RUSSIA--BATS)

KURSKOV, A.N. (Minsk)

Bats are our combrades. Zashch. rast. ot vred. i bol. 6 no.10:
41-42   O '61.   (MIRA 16:6)

1. Uchenyy sekretar' otdela zoologii i parazitologii AN
Belorusskoy SSR.
                          (Bats)

KURSOV, A.N. [Kurskou, A.N.]

Materials on the ecology of bats in White Russia. Vestsi AN BSSR.
Ser. biial. nav. no.2:99-105 '61.   (MIRA 14:7)
                    (WHITE RUSSIA—BATS)

KURSKOV, A.N.

Interesting case of the migration of the bat Vespertilio murinus L.
Zool.zhur. 40 no.7:1108-1109 Jl '61.   (MIRA 14:7)

1. Department of Zoology and Parasitology, Academy of Sciences of
the Bielorussian S.S.R., Minsk.
            (Bats)   (Animal migration)

KURSKOV, A.N.

       Materials on banding bats in White Russia. Migr. zhiv. no.3:21-25
       '62.   (MIRA 16:2)

      1. Zoologicheskiy institut AN BSSR.
              '(White Russia—Bats)
            (White Russia--Animals, Marking of)

ARZAMASOV, I.T.; KURSKOV, A.N.

Extoparasites of bats in White Russia. Dokl. AN BSSR 6 no.3:202-
203 Mr '62.   (MIRA 15:3)

1. Otdel zoologii i parazitologii AN BSSR. Predstavleno akademikom
AN BSSR Kh.S. Goreglyadom.
            (White Russia--Insects, Injurious and beneficial)
                             (Parasites--Bats)

KURSKOV, I.A., inzh.

Determination of short-circuits in the turns of the secondary
windings of electric current transformers using their voltampere
characteristics. Elek.sta. 33 no.11:87-88 N '62. (MIRA 15:12)
(Electric transformers)

KURSKOV, Yu. V.

Dissertation defended for the degree of Candidate of Historical Sciences in the
Institute of History

"Social-Ecomonic Views and the Governmental Activity of A. L. Ordin-Nashchokin."

Vestnik Akad. Nauk, No. 4, 1963, pp 119-145

Kursov, V.

107-57-6-49/57

AUTHOR: Kursov, V. (Rakhinpa, Stalingrad oblast)

TITLE: Increasing the Speed of a Phonograph Turntable
            (Uvelicheniye chisla oborotov diska proigryvatelya)

PERIODICAL: Radio, 1957, Nr 6, p 56 (USSR)

ABSTRACT: In rural areas, where the power-line voltage often is below normal,
            the turntable motor does not develop the standard rpm speed. To
            remedy the situation it is recommended to wind a few layers of
            insulating adhesive tape around the 78 and 33 rpm driving pulleys
            for increasing the effective diameter of the pulleys.

AVAILABLE: Library of Congress

Card 1/1

KURSS, V.; STINKULE, A.

Content of titanium and rare earth minerals in Devonian sandy sediments
of the Gauja Basin. Vestis Latv ak no.5:109-116 '61.

1. Latvijas PSR Zinatnu akademija, Geologijas un derigu izraktenu insti-
tuts.

KURSTIN, I. T.

Interoceptive gastric effect on the function of pancreas,
liver and duodenum. Klin. med. Moska 28 no.9:21-35 Sept. 1950.
(CLML 20:1)

1. Of the Laboratory of Clinical Physiology (Head -- Prof.
A. V. Rikkl'), Department of General Physiology (Head --
Academician K. M. Bykov) of the Institute of Experimental
Medicine of the Academy of Medical Sciences USSR.

KURATOWSKI, KAZIMIERZ

Wstep do teorii mnogosci i topologii. Warszawa (1955) 219 s.
(Biblioteka matematyczna, 9) (Introduction to the theory of aggregates
and topology) RPB   Not in DLC

So. East European Accessions List   Vol. 5, No. 9   September, 1956

KURSZAWA, S.

POL.

2901. PROTOTYPE OF A POLISH METHANOMETER. Kurszawa, S., Bieda, K.,
Zakrzewski, J. and Biernacki, K. (Przegl. górn. ____ July/Aug.
1954, vol. 10, 274-276; abstr. in Iron Coal Tr. Rev., 10 Dec., 1954, vol.
169, 1400). The new Polish methanometer is based on the principle of
determination of the heats of combustion of mixtures of mine gas and air
according to the volumetric capacity of the heating element.   The differences
in temperature thus determined cause changes in the electrical resistance of a
platinum spiral, which are measured by means of a Wheatstone bridge.   N.C.B.

K n?7, F ried rich

CZECHOSLOVAKIA/Analytical Chemistry - Analysis of Organic   E-3
          Substances.

Abs Jour : Ref Zhur - Khimiya, No 8, 1958, 24904

Author   : XIII. Vecera Miroslav, Friedrich Kurt
             XIV. Gasparic Jiri, Vecera Miroslav
Inst   : -
Title   : Identification of Organic Substances. XIII. Use of Ion-
             Exchangers in Organic Analysis. XIV. Separation and
             Identification of Aliphtic Aldehydes and Ketones by
             Means of Paper Chromatography.

Orig Pub : Chem. listy, 1957, 51, No 2, 283-286, 291; Sb. chakhosl.
             khim. rabot, 1957, 22, No 5, 1421-1425, 1426-1431

Abstract : XIII. Formation of a solution of an acid on interaction
             of the solution of the corresponding salt with a cathio-
             nite (K_m) is used for determination of equivalence and
             molecular weight of organic acids and bases. First a
             difficultly soluble salt of the substance under study is

Card 1/3

             prepared, then it is purified by recrystallization, its
             solution is passed through the K_m and the eluate is titra-
             ted with a solution of NaOH. For the analysis of aroma-
             tic sulfonic acids and fatty carboxylic acids use is made
             of the corresponding salts of 1-naphthyl-, methyl- or ben-
             zyl-thiouronium, while for the analysis of organic bases
             (amines, tauronium and sulfonium bases) -- the salts of
             picric or 3,5-dinitro-benzoic acid. As solvents are uti-
             lized aqueous acetone, 96% or aqueous alcohol, and water.
             The method can be used for identification of organic subs-
             tances and for the preparation of pure carboxylic acids
             and sulfonic acids.
             XIV. A rapid chromatographic method has been worked out
             for separation and identification of aliphatic aldehydes
             (A) and ketones (K). Whatman paper No 4 treated with di-
             methyl formamide (I) is used. A and K are analyzed in

Card 2/3

YUGOSLAVIA/Chemical Technology. Chemical Products H-19
and Their Applications. Perfumes and
Cosmetics. Essential Oils.

Abs Jour : Ref Zhur-Khimiya, No 7, 1959, 24660

Author : Kurt, H., Devetak, Z.
Inst   : –
Title   : Essential Oil "Menthoo Piperitae" from
          Bosnia and Herzegovina.

Orig Pub : Farmac. glasnik, 1957, 13, No 1, 3-5

Abstract : It was found that physical constants of
          pepermint oils, derived from plants, grow-
          ing in various localities (yielding 0.74-2.00
          percent) vary within the following limits:
          $n^{20}D$, 1.4614 - 1.4635; d_{15}, 0.9073 - 0.9552;
          $[\alpha]^{20}D$, -16°-7' to -28°-6', solubility,

Card   : 1/2

YUGOSLAVIA/Chemical Technology. Chemical Products   H-19
             and Their Applications. Perfumes and
             Cosmetics. Essential Oils.

Abs Jour : Ref Zhur-Khimiya, No 7, 1959, 24660

2,3-2.7 volumes in 70 percent alcohol; acid
number, 0.55-1.68; contents (in percent) of
methylacetate 5.38-33.54, bound menthol 4.20-
-33.54, total menthol 50.35-64.54, menthon
5.72-38.55. It is indicated that oils deri-
ved from the second crop have an unpleasant
odor and taste. -- N. Lyuboshots

Card   : 2/2

/+-/02

KURT, H.; KAPETANOVIC, S.

Essential oil obtained from helichrysum flowers in Hercegovina.   p. 13.

BILTEN DOKUMENTACIJE. TEHNIKA SAOBRACAJNIH SREDSTAVA. (Drustvo hemicara i tehnologa NR Bosne i Hercegovine. GLASNIK) Sarajevo, Yugoslavia. Vol. 7, 1958.

Monthly List of East European Accessions (EEAI) LC Vol. 9, no. 2, Feb. 1960.

Uncl.

KURT, H.; KAPETANOVIC, S.

Contribution to the knowledge of etherial oil obtained from junipers. p. 19.

BILTEN DOKUMENTACIJE. TEHNIKA SAOBRACAJNIH SREDSTAVA. (Drustvo hemicara
i tehnologa NR Bosne i Hercegovine. GLASNIK) Sarajevo, Yugoslavia. Vol. 7, 1958.

Monthly List of East European Accessions (EEAI) LC Vol. 9, no. 2, Feb. 1960.

Uncl.

KURT, L.A.

Some problems in the ecology of soil oligochaetes of the genus
Enchytraeidae. Zool. zhur. 40 no.11:1625-1632 N '61.
(MIRA 14:11)

1. State Pedagogical Institute of Moscow.
(Oligochaeta) (Soil fauna)

KURT, L.A.

Some problems of the ecology of oligochaetous soil worms of the family Enchytraeidae. Vop. ekol. 7:93-94 '62.   (MIRA 16:5)

1. Gosudarstvennyy padagogicheskiy institut imeni V.I.Lenina, Moskva.
                    (Central Black Earth Preserve--Oligochaeta)

KURT, V.G.; VAYSBERG, O.L.

Starting regular observations of infrared coronal lines. Astron.
tsirk, no.174:11-12   N '56.   (MIRA 10:3)

1. Gosudarstvennyy asteonomicheskiy institut imeni P.K.Shternberga
i Gornaya asteonomicheskaya stantsiya Glavnoy astronomicheskoy
(Pulkovskoy) observatoriya.
                    (Sun--Corona) (Spectrum,Solar)

KURT, V. G.

33-3-25/32

AUTHOR: Shcheglov, P.V. and Kurt, V.G.

TITLE: High voltage source for feeding electron-optical image converters. (Istochnik vysokogo napryazheniya dlya pitaniya elektronno-opticheskikh preobrazovateley)

PERIODICAL: "Astronomicheskiy Zhurnal" (Journal of Astronomy), 1957, Vol.34, No.3, pp. 487 - 489 (U.S.S.R.)

ABSTRACT: A description is given of high-voltage supplies, AC and battery-operated, for feeding electron-optical converters. These were used for astronomical observations during 1955-1956. The high-voltage supply circuit is operating on the principle of transformation of the magnetic energy passing through a self-induction into electrical energy, charging the parasitic capacitance of the induction coil during rapid breaking of the circuit. If the inductance to capacitance ratio is appropriately chosen, it is possible to produce by this method a voltage of several kV. Fig. 1 shows the circuit diagram operating from an AC supply system. Fig. 3 shows the circuit diagram of the high voltage supply circuit operating from a battery. The supply source consumes 0.3 mA at 300 V.

ASSOCIATION: State Astronomical Institute im. P.K. Shternberg. (Gos. Astronomicheskiy Institut im. P.K. Shternberg)
SUBMITTED: December 11, 1956.
AVAILABLE: Library of Congress

Card 1/1

33-4-17/19

KURT, V G.

AUTHOR: Gnevyshev, M. N., Gnevysheva, R. S. and Kurt, V.G.

TITLE: Observations of the infrared coronal lines 10747 Å and 10798 Å. (O nablyudenii infrakrasnykh koronal'nykh liniy 10747 Å i 10798 Å.)

PERIODICAL: Astronomicheskiy Zhurnal, 1957, Vol.34, No.4, pp.671-674 (USSR)

ABSTRACT: A method is described whereby the infrared lines of the corona 10747 and 10798 Å may be studied using an electron-optical converter. This was developed at the Pulkovo Observatory in co-operation with the Shternberg State Astronomical Institute. Systematic observations are being carried out at present using this method. In addition, the helium lines 10830, and the hydrogen lines 10938 Å of the Paschen series are being obtained during the exposures. A preliminary comparison of the distribu-tions of intensity in the infrared lines round the sun among themselves, and also with the distribution of the lines 5303 and 6374 Å, has shown similarities in the behaviour of the lines 10798, 10747 and 5303 Å. This may be explained by the near-equality of their ionisation potentials. The behaviour of the line 6374 Å differs markedly from the behaviour of the above three lines. This in turn may be explained by a considerable difference

Card 1/2

33-4-17/19

Observations of the infrared coronal lines 10747 Å and 10798 Å. in the ionisation potentials of the line 6374 Å, and confirms the correctness of the identification of the lines. Latest observations confirm the presence of the luminescence in the helium line 10830 Å at certain places in the corona.
There are 3 figures, 2 tables and 4 references, all of which are Slavic.

SUBMITTED: April, 10, 1957.

ASSOCIATION: The Mountain Astronomical Station of the Main Astronomical Observatory of the Academy of Sciences of the USSR. The Shternberg State Astronomical Institute. (Gornaya Astronomicheskaya Stantsiya Glavnoy Astronomicheskoy Observatorii Akademii Nauk SSSR. Gos. Astronomicheskiy In-T im. P. K. Shternberga).

AVAILABLE: Library of Congress

Card 2/2

KARIMOV, M.G.; KURT, V.G.

Investigation of coronal line profiles at 10747 $\overset{o}{A}$ and 10798 $\overset{o}{A}$.
Dokl. AN SSSR 117 no.2:207-208 N '57.
(MIRA 11:3)

1. Gosudarstvennyy astronomicheskiy institut im. P.K. Shternberga i
Astrofizicheskiy institut Akademii nauk KazSSR. Predstavleno aka-
demikom V.G. Fesenkovym.
(Sun--Corona)   (Spectrum, Solar)

KURT, V. G.

25-1-9/48

AUTHORS: Kurt, V.G., and Shcheglov, P.V., Scientific Workers of the State Astronomical Institute imeni P.K. Shternberg

TITLE: Electronics in Astronomy (Elektronika v astronomii)

PERIODICAL: Nauka i Zhizn', 1958, #1, pp 23-28 (USSR)

ABSTRACT: The application of electronics in astronomy makes it possible to carry out observations with strict accuracy. A new branch of science came into existence - radio-astronomy - which deals with the radio radiation of the sun, of clouds of inter-stellar gas, and of remote stellar systems, galaxies, etc. A number of new devices have been designed for this purpose. Photometric recording of light intensity, for instance, is possible with a measuring device linked to the series connection of a photoelement; this is at the same time the simplest stellar electrophotometer.

The first principles advanced for achieving an intensification of the photocurrent of the photoelectric cell, suggested by Soviet scientist L.A. Kubetskiy in 1930, are based on making use of secondary electronic amplification. The discovery of a photoamplifier made it possible to apply

Card 1/4

25-1-9/48

Electronics in Astronomy

photoelectric methods in the field of astronomy. Special telescopes with photoamplifiers have been designed for this operation. Intensive research work resulted in finding two chief types of photocathodes: the antimonial-cesium cathode and the oxygen-cesium cathode, both of which are distinguished by their spectral sensitivity. The quanta output of the antimonial-cesium photocathode amounts to 30%, that means 3 quanta of light are necessary to extract one electron from the photocathode; the output of the oxygen-cesium photocathode is equal to about 0.1%.

Another astronomic device for measuring the intensity of stars by photoelectric methods consists of a telescope in the focus of which an interchangeable diaphragm is installed. The electric arrangement of this device has a high voltage source (800 - 1,500 v) for feeding the photoamplifier, a small intensifier and a registering installation (e.g. a galvanometer).

Information concerning the distribution of energy in the spectra of stars can be obtained by determining their intensity through various color filters. The Crimean Astrophysical Observatory of the USSR Academy of Sciences (Krymskaya astrofiziskaya observatoriya akademii nauk USSR) is

Card 2/4

25-1-9/48

Electronics in Astronomy

now carrying out experiments in this field, under the di-
rection of V.B. Nikonov.

Recently, new devices have been designed, the so-called
"automatic guides", where the application of electrons en-
sures direct guiding of the telescope, without any deflection,
onto the star to be investigated. Such a photoelectric
guide for a solar telescope was constructed by E.Ye. Dubov
of the Crimean Astrophysical Observatory, and proved to be
very effective, the sun deflection being much smaller than
in the case of manually operated guidances.

The photocell is another electronic device applied in
astronomy. It is sensitive to infra-red rays with a wave
length of up to 3.5 microns.

The electronic optical converter (ЭОП) - another
photoelectric device - is of very simple design. The photo-
cathode may be either antimonial-cesium or oxygen-cesium.
The sensitivity of the ЭОП is 10 times greater in the
visible part of the spectrum than that of a photo-plate, and
in the infra-red section this sensitivity is 100 times
greater. Since infra-red rays easily pass through dense
cosmic dust, Soviet scientists V.I. Krasovskiy, V.B. Nikonov
and A.A. Kalinyak succeeded in examining the center of our

Card 3/4

25-1-9/48

Electronics in Astronomy

stellar system, which is surrounded by dense dust clouds in interstellar space. This discovery represents quite a success in the astronomic field.

In the second artificial Sputnik launched by the Soviet Union, photoelectric equipment was installed for registering the Roentgen and ultra-violet radiations of the sun, and valuable data concerning the ultra-violet radiation of the sun have been obtained.

There are nine sketches and two photographs.

ASSOCIATION: State Astronomical Institute imeni P.K. Shternberg (Gosudarstvennyy astronomicheskiy institut imeni P.K. Shternberga)

AVAILABLE: Library of Congress

Card 4/4

8

SOV/55-58-3-9/30

3(1)
AUTHOR: Kurt, V.G.

TITLE: Investigation of the Optical System of the Coronagraph of
             Lyot (Issledovaniye optiki vnezatmennogo koronografa sistemy
             Lio)

PERIODICAL: Vestnik Moskovskogo universiteta,Seriya matematiki, mekhaniki,
             astronomii, fiziki, khimii   ,1958,Nr 3,pp 65-68 (USSR)

ABSTRACT: During the observations of the sun corona outside of the
             solar eclipse the light scattering caused by the main ob-
             jective is of extraordinary importance. The sources of
             scattering are the defects of glass and the imperfection of
             the surface. In the present paper the author describes the
             method according to which the objective of the coronagraph
             of the GAISh was examined for such defects and imperfections.
             In the performance of the very careful examination the author
             was assisted by V.G. Shreyber, A.D. Danilov and G.S. Ivanov-
             Kholodnyy. The objective was produced by V.G. Shreyber at the
             factory "Lenzos". The astronomers A.B. Delone and Ye.A.
             Makarova are mentioned.

Card 1/2

Investigation of the Optical System of the   SOV/55-58-3-9/30
Coronagraph of Lyot

There are 7 figures, and 3 references, 1 of which is Soviet,
and 2 are American.

ASSOCIATION: Kafedra astrofiziki GAISh (Chair of Astrophysics of the
Astronomical State Institute imeni P.K. Shternberg)

SUBMITTED: February 21, 1958

Card 2/2

KURT, V.G., Cand Phys Math Sci -- (diss) "Determining the density of the atmosphere at an altitude of 430 km. by the method of the diffusion of sodium vapors." Mos, 1959, 8 pp (Mos Order of Lenin and Order of Labor Red Banner State Univ im MoV. Lomonosov. State Astronomical Inst im P.K. Shternberg) 120 copies (KL, 33-59, 116)

- 3 -

34127
S/124/62/000/001/032/046
D237/D304

3,5110

AUTHORS:

TITLE:

PERIODICAL:

Shklovskiy, I. S., and Kurt, V. G.

Determining atmospheric density at an altitude of 430 km by the method of diffusion of sodium vapors

Referativnyy zhurnal, Mekhanika, no. 1, 1962, 96, abstract 1B660 (V sb. Iskusstv. sputniki Zemli. no. 3. M., AN SSSR, 1959, 66-76)

TEXT: A method of determining atmospheric density by diffu-sion of sodium vapors is considered, and the authors assume that it can be used at altitudes of 200 - 600 km. On September 19, 1958, in the USSR, the first experiment was performed on a high altitude rocket, on density determination by the above method at an altitude of 430 km. The article describes the experiment, instrumentation, and observations of the sodium cloud after its formation. The relation is shown between the brightness of the

Card 1/3

34127
S/124/62/000/001/032/046
D237/D304

Determining atmospheric...

center of the cloud and time by photographic and photo-electric recording and the dependence of total radiation on time. In the first few tens of seconds after the evaporation, the cloud was irregular and changing, but after approximately 100 sec., it became spherical; and also from that moment, total radiation flow, after a period of sharp rise, became constant. The radius of the cloud S varied with respect to time, according to the law $S = t^{1/2}$, which is characteristic for a diffusion process in the cloud. As an example, estimation of the density of air at an altitude of 430 km by the diffusion of clouds gives $n = 1.6 \times 10^8$ cm^{-3} (or by more exact calculations, $n = 2.5 \times 10^8$ cm^{-3}). In this determination of the air density by the diffusion of sodium vapor cloud method, a series of assumptions is made: temperature of the atmosphere is 1600°K; density of atmosphere within the limits of the cloud is constant (diameter of the cloud--100 km); force of gravity is neglected; size of atoms is taken as

Card 2/3

34,127
S/124/62/000/001/032/046
D237/D304

Determining atmospheric...

$a = 3.5 \times 10^{-8}$ cm, etc. The authors estimate the probable error in determining n as 30%. Therefore, $n = (2.5 \pm 0.75) \times 10^8$ cm^{-3}. If it is assumed that the atmospheric composition is mainly atomic nitrogen and oxygen, then $\rho = (6.7 \pm 2) \times 10^{-15}$ g/cm^3. From the analysis of retardation of the satellite 1958 α (Explorer 1) at a height of 450 km, $\rho = (9 \pm 6) \times 10^{-15}$ g/cm^3, while, according to the data, at that height $\rho = 3 \times 10^{-15}$ g/cm^3. Some results are given of density determination by satellite retardation, and their good agreement is noted with the results obtained by the authors. 16 references. /Abstracter's note: Complete translation./

Card 3/3

S/035/60/000/007/008/018
A001/A001

3,1210

Translation from: Referativnyy zhurnal, Astronomiya i Geodeziya, 1960, No. 7, p. 61, # 6327

AUTHORS: Delone, A.B., Makarova, Ye.A., Kurt, V.G.

TITLE: Lyot Coronograph of GAISh

PERIODICAL: Astron, tsirkulyar, 1959, iyunya 18, No. 203, pp. 3-4

TEXT: A Lyot coronograph is described which was mounted on the base of a GAISh high-mountainous expedition near Alma-Ata. The optical diagram of the instrument is cited (see Figure).

(Diagram)

Translator's note: This is the full translation of the original Russian abstract.

Card 1/1

80138

S/141/59/002/06/020/024
E032/E314

9,9/00

AUTHOR: Kurt, V.G.

TITLE: Determination of the Density of the Neutral Component
            in the Ionosphere

ABSTRACT: New results obtained mainly with the aid of artificial
           Earth satellites (Refs 2,3) indicate that the density
           of the neutral component is higher by a factor of 10 than
           the value accepted two years ago. However, the deter-
           mination of the density of both the ionized and the
           neutral components ought to be carried out by other
           independent methods also. It is desirable for such a
           method to give in a single experiment both the density
           and the temperature of the upper atmosphere. Such an
           experiment has been suggested by I.S. Shklovskiy. The
           idea of the experiment is very simple and is based on
           the ejection of a sodium cloud from a high-altitude rocket.
           The cloud can then be observed from the Earth surface
           owing to its resonance fluorescence excited by solar

Card1/2

80138
S/141/59/002/06/020/024
E032/E314

Determination of the Density of the Neutral Component in the Ionosphere

radiation. Such an experiment has been carried out by the present author, the sodium cloud being ejected at a height of 430 km. The data obtained are summarized in Figure 2, in which the altitude is plotted along the horizontal axis (in km) and the density along the vertical axis (in g/cm^3). As can be seen, the density falls off roughly linearly from a value of the order of about 10^{-12} to about 10^{-15} at 600 km. The sodium-cloud method can also be used to determine the temperature of the atmosphere from the Doppler width of the emission lines. An experiment of this type will be carried out in the near future. There are 2 figures and 3 references.

ASSOCIATION: Gosudarstvennyy astronomicheskiy institut imeni Shternberga (State Astronomical Institute imeni Shternberg)

SUBMITTED: August 29, 1959

Card 2/2

S/033/60/037/03/017/027
E032/E514

AUTHORS: Kaplan, S.A. and Kurt, V.G.

TITLE: On the Expansion of a Sodium Cloud in the Interstellar Space

PERIODICAL: Astronomicheskiy zhurnal, 1960, Vol 37, Nr 3, pp 536-542 (USSR)

ABSTRACT: Shklovskiy et al. (Refs 1 and 2) have described a method for the observation of the sodium cloud ejected from the second Soviet cosmic rocket on September 13, 1959. The results obtained by this method were also reported. The present paper gives a quantitative description of the expansion of the sodium cloud. It is shown that the expansion can be divided into two stages, namely, adiabatic expansion accompanied by a fall in the temperature and a free expansion during which the atoms preserve their thermal velocities corresponding to the temperature reached at the end of the adiabatic expansion. If one assumes spherical symmetry, then the expansion of the gas is described by Eq (3), where
Card 1/4   in the free expansion stage the term $\partial p/\partial r$ can be

S/033/60/037/03/017/027
E032/E514

On the Expansion of a Sodium Cloud in the Interstellar Space

omitted. In the adiabatic stage the pressure gradient
is also much smaller than the first two terms and the
solution of Eq (3) is of the form given by Eq (4),
where A is a constant and $f(v)$ is an arbitrary function
which is determined by the boundary and initial
conditions. Certain hypothetical expressions for $f(v)$
have been suggested by Stanyukovich (Ref 3). Under
certain simplifying assumptions it can be shown that
the relation between the velocity of adiabatic expansion
a   and the thermal velocity of the second stage c_k
are related by Eq (7) in the case of spherical
symmetry and by Eq (8) in the case of cylindrical
symmetry.   Assuming a Maxwell distribution of velocities
(Eq 9), it is shown that the density distribution is
given by Eq (12). Fig 1 shows the theoretical density
distribution in the free expansion stage for various
values of α which is proportional to the ratio a/c_k.

Card 2/4   The dotted curve represents the density distribution

S/033/60/037/03/017/027
E032/E514

On the Expansion of a Sodium Cloud in the Interstellar Space

when the adiabatic stage is absent.   Fig 2 shows the theoretical distribution of surface brightness for similar values of α. These theoretical calculations are then compared with photographs obtained by Yesipov at Stalinabad with the aid of an image converter telescope.   The observed distributions of surface brightness at different instants of time are shown in Fig 3 (1 - 93 sec, 2 - 103 sec, 3 - 146 sec, 4 - 178 sec after ejection). The experimental data are also summarized in Table 1. According to these data $a \approx 1.63$ km/sec and $c_k = 0.87$ km/sec. The corresponding theoretical value is $c_k = 0.90$ km/sec if it is assumed that $a = 1.63$ km/sec. It also follows that during the adiabatic stage the temperature falls by 350 to 600°. The observational material suggests the presence of an adiabatic stage. It is also possible that droplets of sodium are ejected from the evaporator, the dimensions of these droplets being 10^{-4} to 10^{-2} cm.

Card 3/4   In interstellar space these droplets will evaporate and $\mathcal{JC}$

S/033/60/037/03/017/027
E032/E514

On the Expansion of a Sodium Cloud in the Interstellar Space

form a new gas cloud which will expand with a lower velocity. The presence of such a secondary cloud may lead to a loss of definition of the central part of the main sodium cloud and to a slower fall off of the surface brightness. It is shown that this effect does not contribute appreciably to the outer structure of the main sodium cloud. Acknowledgment is made to L. M. Lukhovitskaya for assistance in the numerical computations.
There are 3 figures, 1 table and 4 references, 3 of which are Soviet and 1 Dutch.

ASSOCIATION: L'vovskaya astronomicheskaya observatoriya
Gos. astronomicheskiy in-t imeni P. K. Shternberga
(L'vov Astronomical Observatory, State Astronomical
Institute imeni P. K. Shternberg)

SUBMITTED: January 16, 1960

Card 4/4   √C

83233

9.9000
3.2100
9.6150

S/033/60/037/04/009/012
E032/E314

AUTHORS: Gringauz, K.I., Kurt, V.G., Moroz, V.I. and
             Shklovskiy, I.S.

TITLE: Results of Observations Obtained with the Aid of
             Charged-particle Traps Mounted on Soviet Cosmic
             Rockets at Altitudes up to 100 000 km

PERIODICAL: Astronomicheskiy zhurnal, 1960, Vol. 37, No. 4,
             pp. 716 - 735

TEXT: The ionized gas and energetic electrons in interplanetary
space were investigated with the aid of three-electrode charged-
particle traps mounted on three Soviet cosmic rockets. These traps
are the result of further development of instruments based on
probe methods. Four three-electrode ion traps were mounted on the
spherical container carried by the first Soviet cosmic rocket
launched in the direction of the Moon on January 2, 1959. Each tr
consisted of three hemispherical and concentrically-mounted
electrodes whose radii were 60, 22.5 and 20 mm, respectively.
The two outer electrodes were fine metal grids, while the third
electrode was continuous and served as the collector of the char
particles. The potentials relative to the body of the containe
Card 1/9

83233
S/033/60/037/004/009/012
E032/E314

Results of Observations Obtained with the Aid of Charged-particle
Traps Mounted on Soviet Cosmic Rockets at Altitudes up to
100 000 km

were as follows: collector 90 V; intermediate grid g_1 - 200 V;
the outer grid g_2 + 10 V and 0 V in the case of two of the four
traps. The potential of the outer grids of the other two traps
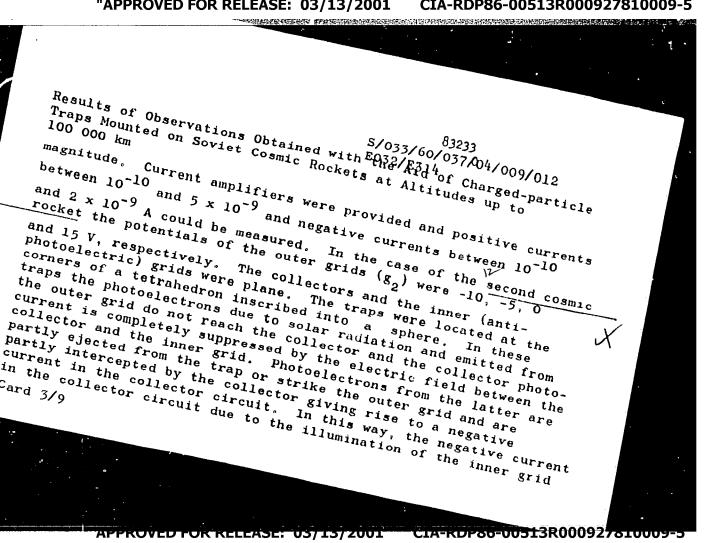was +15 V and their collectors were connected together. The
general arrangement of electrodes in these three-electrode ion
traps is indicated in Fig. 1. The first grid (g_1) served to
suppress the photocurrent from the collector produced under the
action of the solar radiation and other radiations incident on the
collector. This grid also suppresses secondary electrons emitted
by the collector. All the traps were located in the meridional
plane of the container. Different potentials were given to the
outer grids in order to estimate the energy of the positive
particles entering the traps and, in particular, to distinguish
between currents due to stationary gas particles (energies of
the order of 1 eV) and currents due to protons in the corpuscular
streams, whose energies are higher by two or three orders of

Card 2/9

Results of Observations Obtained with the Aid of Charged-particle Traps Mounted on Soviet Cosmic Rockets at Altitudes up to 100 000 km

S/033/60/037/004/009/012

83233

magnitude. Current amplifiers were provided and positive currents between 10^{-10} and 2×10^{-9} and negative currents between 10^{-10} and 5×10^{-9} A could be measured. In the case of the second cosmic rocket the potentials of the outer grids (g_2) were $-10, -5, 0$ and 15 V, respectively. The collectors and the inner (anti-photoelectric) grids were plane. The traps were located at the corners of a tetrahedron inscribed into a sphere. In these traps the photoelectrons due to solar radiation and emitted from the outer grid do not reach the collector and the collector photo-current is completely suppressed by the electric field between the collector and the inner grid. Photoelectrons from the latter are partly ejected from the trap or strike the outer grid and are partly intercepted by the collector giving rise to a negative current in the collector circuit. In this way, the negative current in the collector circuit due to the illumination of the inner grid

Card 3/9

83233
S/033/60/037/004/009/012
E032/E314

Results of Observations Obtained with the Aid of Charged-particle
Traps Mounted on Soviet Cosmic Rockets at Altitudes up to
100 000 km

was reduced by an order of magnitude compared with the traps
mounted on the first rocket. Most of the aluminium surface of
the container was covered by an Al_2O_3 coating (or film). If the potential
on g_2 is less than kT/e then the positive ions due to the
stationary interplanetary gas penetrate into the space bounded
by g_2, are accelerated in the field between g_1 and g_2 and,
on passing through g_2, enter the collector. Thus "0 volt",
"-5 volt" and "-10 volt" traps should record ions due to the
stationary plasma which would be larger for lower values of the
potential on g_2. If the latter is very much greater than
kT/e, then the ions will not pass through g_2 and the +15 V trap
will not record ions due to the stationary gas with a temperature
of, say, 10 000 °K. The electrons due to the ionised gas do not
enter the collector since they are ejected by the field between
Card 4/9

83233
S/033/60/037/004/009/012
E032/E314

Results of Observations Obtained with the Aid of Charged-particle Traps Mounted on Soviet Cosmic Rockets at Altitudes up to 100 000 km

g_2 and g_1 (200 V). However, energetic electrons belonging to the radiation belts cannot be stopped by the g_1 grid and electrons with energies greater than 200 eV give rise to negative collector currents. Measurements obtained with these traps were corrected for the effect of the potential of the container and its motion. Fig. 6 shows the currents measured on September 12, 1959 at altitudes up to 25 000 km, using traps with $V_{g_2} = 0$ and +15 V. The translational motion of the container is accompanied by the simultaneous rotational motion and hence the orientation of each trap relative to the velocity of the container and the direction of the Sun varies continuously. The maximum and minimum values of the collector current correspond to certain definite orientations of the container. In order to exclude the effect associated with the rotation of the container, the

Card 5/9

83233

S/033/60/037/004/009/012
E032/E314

Results of Observations Obtained with the Aid of Charged-particle
Traps Mounted on Soviet Cosmic Rockets at Altitudes up to
100 000 km

experimental results can be shown in the form of curves
connecting the maximum and minimum values of the collector
currents. In Fig. 7, Curves 1, 2, 3 and 4 are the upper limits
of the recorded values of collector currents with the potential
of the outer grids relative to the container equal to -10, -5, 0
and +15 V, respectively. Curve 5 is the lower boundary of the
collector currents for three traps, in which the potential of the
outer grid relative to the body of the container was negative or
zero. These curves show the considerable dependence of the current
due to positive particles reaching the collector on the potential
of the outer grid. At altitudes exceeding 3 000 km the positive
potential of the outer grid retards the positive ions almost
entirely and prevents them from reaching the collector. The lack
of similarity between Curves 1, 2 and 3 can be ascribed to changes
in the orientation of the traps relative to the velocity vector
and the direction of the Sun. Fig. 8 shows the data obtained with
the second cosmic rocket. The upper continuous curve shows the
Card 6/9

83233

S/033/60/037/004/009/012
E032/E314

Results of Observations Obtained with the Aid of Charged-particle
Traps Mounted on Soviet Cosmic Rockets at Altitudes up to
100 000 km

upper boundary of the measured values of the currents in three
traps with the outer grid potentials negative and zero. The dotted
curve represents the upper boundary of the values of the collector
current for the trap with outer grid potential euqal to +15 V.
The lower curve is the lower boundary of the measured collector
currents in all the traps. In this part of the trajectory (25 000
- 100 000 km) the positive collector currents are practically absent
from all the traps while near 60 000 - 70 000 km the collector
currents in all the traps are simultaneously negative. Fig. 9 shows
the upper boundary of the values of collector currents for traps
with negative and zero outer grids, respectively. The crosses refer
to V_{g_2} = -10 V and the open circles to V_{g_2} = 0 V. These were
recorded using traps mounted on the first cosmic rocket. Fig. 10
shows the currents for the "25 V" and the "-10 V" traps recorded
at altitudes up to 8 000 km. The "25 V" results are represented
by the triangles and the "-10 V" results by the points. These results

Card 7/9

83233

S/033/60/037/004/009/012

EO32/E314

Results of Observations Obtained with the Aid of Charged-particle
Traps Mounted on Soviet Cosmic Rockets at Altitudes up to
100 000 km

are still being examined. The final conclusions are summarised
as follows:
1) the Earth is surrounded by a plasma having an ion
concentration of $\sim 10^3$ cm^{-3}, which extends   to R $\approx$ 22 000 km.
The density of this plasma, which can be looked upon as the ionised
component of the "geocorona", decreases regularly with altitude.
2) The concentration of interplanetary ionised gas in the neigh-
bourhood of the Earth is less than 100 cm^{-3} and very probably less
than 30 cm^{-3}.
3) In the region of the radiation belt there are few electrons
having energies greater than 200 eV. In the region between 55 000
and 75 000 km, the concentration of these electrons reaches a
maximum. It follows that the energy spectrum of the electrons in
the region of the maximum of the outer radiation belt is much
harder than beyond its outer boundary.
4) A new radiation belt has been established. This belt surrounds
the Earth and is located between 55 000 and 75 000 km. It consists
Card 8/9

83233

S/033/60/037/004/009/012
E032/E314

Results of Observations Obtained with the Aid of Charged-particle
Traps Mounted on Soviet Cosmic Rockets at Altitudes up to
100 000 km

of electrons with relatively low energy (although greater than
200 eV). Further studies of this new radiation belt are said
to be urgently required.
There are 11 figures, 1 table and 26 references: 1 German,
10 English and 15 Soviet.

ASSOCIATIONS: Radiotekhnicheskiy institut Akademii nauk SSSR
(Radiotechnical Institute of the Ac.Sc., USSR)
Gos. astronomicheskiy in-t im. P.K. Shternberga
(State Astronomical Institute imeni
P.K. Shternberg)

Card 9/9

84934

9.9100 (2101, 1041, 1046)

S/(3ა/60/037/005/019/024
EO3ა/E314

AUTHORS: Shklovskiy, I.S., Moroz, V.I. and Kurt, V.G.

TITLE: On the Nature of the Earth's Third Radiation Belt

PERIODICAL: Astronomicheskiy zhurnal, 1960, Vol. 37, No. 5,
             pp. 931 - 934

TEXT: Results obtained with the aid of ion traps set up on
Soviet cosmic rockets indicate the presence of a third (outermost)
radiation belt (Ref. 1). This belt consists largely of relatively
soft electrons with energies greater than 200 eV. In the region
of the so-called second radiation belt and up to altitudes of
about 50 000 km the flux of electrons with energies greater than
200 eV is less than 2×10^{7} cm^{-2} sec^{-1}. On the other hand, in
the region 55 000 $<$ R $<$ 75 000 km the flux is about
2×10^{8} cm^{-2}sec^{-1}. Thus (as was shown in Ref. 1), the second
belt should consist mainly of electrons having relatively high
energies (a few hundreds of keV) and these electrons move in the
magnetic trap. The problem therefore arises as to what is the
nature of the electrons forming the third (outermost) radiation

Card 1/3

84934
S/C33/60/037/005/019/024
E052/E314

On the Nature of the Earth's Third Radiation Belt

belt. In this connection it must be emphasised that both during
the January and September launchings of Soviet cosmic rockets the
solar activity and the magnetic disturbances were at a low level.
However, there are grounds for supposing that even during periods
of low activity the Sun constitutes a source of a permanent though
relatively weak corpuscular emission, i.e. it gives rise to the
so-called "solar wind". It is argued that the third radiation belt
is formed as a result of the interaction of this "solar wind" and
the Earth's magnetic field and this leads to a redistribution of
the energy, resulting in a net transfer from the protons to the
electrons. The third radiation belt is a formation characteristic
of magnetically quiet periods, when solar activity is low. It may
be expected that during periods of high solar activity, when
intense corpuscular streams reach the Earth's atmosphere, both the
third and second belts will be deformed, and their characteristics
will be strongly affected. It is suggested, therefore, that the
experiments should be repeated at periods of high solar activity,

Card 2/3

84934

S/033/60/037/005/019/024
E03_/E314

On the Nature of the Earth's Third Radiation Belt

It is pointed out that the energy density of the Earth's magnetic field is consistent with the measured value of the charged-particle flux. It is argued that the concentration of stationary interplanetary plasma does not exceed the corpuscular concentration of the "solar wind", i.e. about 1 cm^{-3}. Acknowledgments are expressed to S.B. Pikel'ner for discussions in connection with the present work.
There are 10 references: 6 Soviet, 1 Swedish and 3 English.

ASSOCIATION: Gos. astronomicheskiy institut imeni
P.K. Shternberga (State Astronomical Institute
imeni P.K. Shternberg)

SUBMITTED: April 15, 1960

Card 3/3

80180
S/026/60/000/05/014/068
D034/D007

~~3(1)~~
3. 1720

AUTHOR: Kurt, V.G., Moscow

TITLE: The Mystery of the Radio Emission of Jupiter

PERIODICAL: Priroda, 1960, Nr 5, p 62 (USSR)

ABSTRACT: The author discusses the hypothesis of the causes of radio
            emission of the planet Jupiter forwarded by the American
            radioastronomer Field during the regular session of the
            astrophysical colloquy at the Gosudarstvennyy astronomi-
            cheskiy institut im.P.K.Shternberg (State Astronomical
            Institute imeni P.K.Shternberg), which is held under the
            guidance of the Doctor of Physico-Mathematical Sciences
            I.S.Shklovskiy. According to the author the theory is not
            acceptable, mainly due to the fact that the mechanism of
            electron acceleration around the planet is unknown.

Card 1/1

81700
S/020/60/132/05/25/069
B014/B125

3.9000
AUTHORS: Gringauz, K. I., Kurt, V. G., Moroz, V. I.,
Shklovskiy, I. S.

TITLE: An Ionized Gas and Fast Electrons in the Vicinity of the
Earth and in Interplanetary Space

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 132, No. 5,
pp. 1062 - 1065

TEXT: As the results of the second Soviet cosmic rocket indicate, the
first half of its orbit can be divided into four parts. The first ex-
tends to a distance from the earth R = 22,000 km. Significant positive
collector currents occur at all traps with negative or zero potentials.
In the second part, from 22,000 km to 50,000 km, the collector currents
varied between zero and several negative values. In the range from
50,000 km to 70,000 km (third part) negative currents occur in all
traps. With R greater than 70,000 km (fourth part) the currents vary in
all traps between 0 and $5 - 6 \cdot 10^{-10}$ a. These results agree in all three

Card 1/3

An Ionized Gas and Fast Electrons in the   S/020/60/132/05/25/069
Vicinity of the Earth and in Interplanetary   B014/B125
Space

Soviet cosmic rockets. Further the estimation of the ion concentration
was dealt with according to the data and it was determined that one
must know the potential of the receiver in this connection. This poten-
tial depends on the fluxes of high-energy electrons (> 200 ev) and the
most important information on this was obtained with the help of the
measurements of the three-electrode traps. From an extensive investi-
gation it is seen that in the first part of the orbit the flux of elec-
trons with an energy higher than 200 ev does not exceed $2 \cdot 10^7$ $cm^{-2} \cdot sec^{-1}$.
Only electrons with more than 200 ev (flux $1 \cdot 10^8 - 2 \cdot 10^8$ $cm^{-2} sec^{-1}$)
were found in the third part of the orbit. The existence of a third
radiation belt, the lower boundary of which was at 30,000 km on
February 2, 1959, follows from the characteristics of the results dis-
cussed here. Further, the influence of the photoelectric effect induced
by ultraviolet solar radiation on the potential of the receiver is in-
vestigated. As calculations show, the potential differs from zero only
by several volts when with n_i representing the ion concentration in

Card 2/3

An Ionized Gas and Fast Electrons in the   S/020/60/132/05/25/069
Vicinity of the Earth and in Interplanetary   B014/B125
Space

the plasma, $n_i \geq 10$ cm^{-3} and temperature is not too high ($T = 10^4$ °K).

Reference is made to the existence of the plasma of the earth corona, which is found at about $R = 15,000$ km. Calculated and experimentally determined concentration distributions of the ions as dependent on R are graphically represented in Fig. 3. A steep drop of the ion concentration begins at 15,000 km; this fact requires more exact study. Only an upper limit of 30-60 cm^{-3} can be given for the ion concentration in the range of R greater than 22,000 km. The authors mention among others V. G. Fesenkov (Ref. 10). There are 3 figures and 12 references: 7 Soviet, 3 American, 1 English, and 1 German.

PRESENTED: March 1, 1960, by A. L. Mints, Academician

SUBMITTED: February 24, 1960

Card 3/3

40443

3.5131

3.2420

P/048/61/000/003/002/004
I004/I204

AUTHORS: Gringauz, K. I., Kurt, W. G., Moroz, W. I., Szkolwski, I. S.

TITLE: Ionized gas and fast electrons in the vicinity of Earth and in in interplanetar space

PERIODICAL: Astronautyka no. 3, 1961, 8—10

TEXT·   The purpose of this work is to analyze the distribution and nature of radiation in the space surroun-
ding earth with regard to the resultant danger to manned space flights. Data gathered by the second
Soviet cosmic rocket show that four different concentrations of ions can be distinguished along the first half
of its trajectory. In the first portion, extending up to R = 22,000 km (R — the distance from the surface of
earth), all counters with negative or zero potential registered high positive collector currents while in counters
with + 15 v charge relative to the housing, the currents were either small and negative or zero. In the second
portion, between 22,000 and 50,000 km, the collector currents varied between zero and negative values. The
third portion, 50,000 — 70,000 km, showed negative current in all traps. Above 70,000 km current values
were as in portion 2. The current variations in the " + 15 V" trap indicate that the electron flux in the outer
radiation belt is below $2 \cdot 10^7 \, cm^{-2} \, sec^{-1}$. This contradicts the established idea that there exist large electron
streams of $E \approx 20$ to 30 kev in the maximum region of the outer radiation belt. It is assumed that the density
of the kinetic energy of the electrons there, is by several orders of magnitude smaller than the energy density
of the magnetic field of earth. There are 3 figures.

Card 1/1

25989
S/560/61/000/006/007/010
E032/E114

9,9100

AUTHORS: Gringauz, K.I., Kurt, V.G., Moroz, V.I., and
             Shklovskiy, I.S.

TITLE: Ionized gas and fast electrons in the earth's
             neighbourhood and in planetary space

PERIODICAL: Akademiya nauk SSSR. Iskusstvennyye sputniki Zemli.
             No. 6. Moscow, 1961. pp. 108-112

TEXT: This paper was first published in Doklady AN SSSR,
Vol.132, page 1062, 1960.
K.I. Gringauz, V.V. Bezrukikh, V.D. Ozerov and R.E. Rybchinskiy
(present issue, page 101 - Ref.1) showed that the first half of
the trajectory of the second Soviet space rocket can be divided
into four parts, namely: 1) distances up to R = 22000 km (R is
the distance from the earth's surface) where all the traps with
negative or zero potential recorded appreciable collector currents,
while the trap whose potential relative to the body was + 15 V
showed either very small negative currents or no current at all;
2) distances in the range 22000-50000 km, where collector currents
in all the traps varied between zero and some negative values
Card 1/ 6

25989

Icnized gas and fast electrons S/560/61/000/006/007/010
E032/E114

($I_c < 6 \times 10^{-10}$ amp); 3) distances in the range 50000-70000 km
where negative currents were recorded in all the traps and the
absolute maximum and minimum currents were 10^{-9} and 3×10^{-10} amp
respectively; 4) distances greater than 70000 km where currents in
all the traps oscillated between zero and approximately - (5-6) x
10^{-10} amp, which apparently represents the maximum photoelectric
current due to the inner grid which is intercepted by the collector.
The overall trend of the results was found to be the same for all
the three flights of Soviet space rockets. Analysis of all the
results has led the present authors to the scheme indicated in Fig.2
in which 1 is the 'inner' belt, 2 is the 'outer' belt, 3 is the
third belt (now postulated), and 4 is the geomagnetic equator.
In the region of between 50000 and 70000 km the negative currents
of all the traps, which reached 10^{-9} amp, can only be explained by
electrons with energies in excess of 200 eV and $N_e \sim 10^8$ - 2×10^8
$cm^{-2}sec^{-1}$. The third belt therefore consists of relatively low
energy electrons which explains why previous experiments did not
detect its presence. Experiments carried out from the third Soviet
artificial satellite (Ref.8; V.I. Krasovskiy, I.S. Shlkovskiy,
Yu.I. Gal'perin, Ye.M. Svetlitskiy, Dokl. AN SSSR, V.127, 78, 1959)
Card 2/ 6

Ionized gas and fast electrons .....

25989
S/560/61/000/006/007/010
E032/E114

at R = 1800 km and above moderate geomagnetic altitudes indicate the presence of electrons with about 10 keV (up to 3×10^8 cm^{-2}sec^{-1}). This may mean that in the region of the radiation belts the concentration of soft electrons is a minimum. However, the experiment reported in Ref.8 was not simultaneous with that described in the present paper. The readings of the trap with zero potential over the first section of the trajectory can be used to estimate the plasma ion concentration. Fig.3 shows the plasma ion concentration as a function of the distance from the earth's surface [1 - theoretical distribution with $T = 1.8 \times 10^3$; 2, 3, 4 - experimental results with $T = 1800$, 1000 and 5000° respectively; points a and b represent measurements at 470 and 800 km respectively (third artificial earth satellite)]. It follows from Fig.3 that the plasma is not the interplanetary ionized gas, and in fact it is an extended shell which is a part of the ionized component of the outermost part of the earth's atmosphere, i.e. that so called geocorona. There are 3 figures and 12 references: 7 Soviet and 5 non-Soviet. The four most recent English language references read as follows:

Card 3/6